

Subsea Fluid Injection System

Oil & Gas

Overview

The OceanWorks Subsea Fluid Injection System consists of a multiple bladder fluid containment skid, a pumping station and monitoring, control and data logging modules. The Subsea Fluid Injection System can be configured for operation with surface supplied power or with the OceanWorks UPS-3000 battery system for autonomous operation. The Subsea Injection Skid is configured with multiple bladders each capable of holding 2,500 gallons of fluid. The bladder skids can be independently operated or operated as a single reservoir system.

Application

- ▶ Subsea dispersant injection
- ▶ Remote production wellhead chemical injection
- ▶ Subsea methanol injection

Features

The flexibility and modularity of design is the key hallmark of the OceanWorks Subsea Fluid Injection Skid. Multiple skids can be interconnected to allow for larger reservoir capacity. The multi-bladder design provides physical redundancy. All systems can be refilled subsea.

- ▶ Incorporating the Subsea Fluid Injection System with the OceanWorks UPS-3000 battery system allows injection to be accomplished either autonomously or through ROV control eliminating the need for expensive cabled interconnects
- ▶ Monitoring of the reservoir levels, fluid pressure and flow rate as well as state of health monitoring of the pumping station is provided by the control modules
- ▶ The control modules are based on our world leading ocean observing system hardware which is backed by over 1,200,000 hours of cumulative deployed subsea operations
- ▶ The monitoring system is capable of providing alarms or self directed response to out of tolerance events, ensuring faults are isolated and do not propagate through the system
- ▶ The entire Subsea Fluid Injection System is single fault tolerant with fully redundant system design to ensure consistent and optimal operation



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Specifications

Electrical Input

- ▶ Input is 300VDC to 400VDC
- ▶ Over voltage and transient protected
- ▶ Communications options (select on build)
 - 1000BaseLX SM fiber optic gigabit ethernet
 - 100BaseT copper ethernet
 - No external comms only data logging optional
- ▶ Wet-mate connector standard for external communications

Flow Output Parameters

- ▶ Adjustable to 30 GPM standard. Custom designed to suit

Mechanical

- ▶ 20' x 8' x 8'6" ISO container dimensions are standard
- ▶ 10000 lbs in air weight (empty)
- ▶ 100% titanium pressure vessel with dual o-ring seals for monitoring systems
- ▶ Electronic systems vibration qualified to IEC60068-2-64, Category 2

Operation

- ▶ ROV selectable pumping flow, reservoir selection and ROV readable status lights for fluid level, pump status as well as flow rates and pressure.

Reliability

- ▶ 25 year design life on 5 year maintenance service cycles
- ▶ 50,000 Hrs MTBF (MIL-HDBK-217) at 25°C

Environment

- ▶ 3000msw operating depth
- ▶ -20°C to +50°C Transport
- ▶ -3°C to +20°C Operational

Options

- 30' or 40' ISO container configuration
- Daisy chain configuration skids
- Multiple pump station modules
- Integrated mud mats and mud mat suction release system

